

WHAT IS CLAIMED:

1. A method for reducing volume or inhibiting growth of a solid tumor cancer, comprising: administering to a patient having a solid tumor, a tumor specific *Escherichia coli* genetically engineered to express a suicide gene.

5 2. The method according to claim 1 wherein the tumor specific *E. coli* is attenuated.

3. The method according to claim 2 wherein the attenuated tumor specific *E. coli* expresses an altered lipid A molecule.

10 4. The method according to claim 2 wherein the attenuated tumor specific *E. coli* induces TNF- $\alpha$  expression in monocytes or macrophages from about 1 to about 75 percent compared to non-attenuated microorganisms.

5. The method according to claim 1, wherein the tumor specific *E. coli* is a single colony clone of an isolated population of *E. coli* microorganisms.

15 6. The method accordingly to claim 1, wherein the tumor specific microorganism is an enteroinvasive *E. coli* genetically engineered to express a suicide gene.

7. The method according to claim 1 wherein the suicide gene is encoded by the open reading frame of the insert of a plasmid selected from the group consisting of pTK-Sec3, pCD-Sec1 and pSP-SAD4-5.

20 8. The method according to claim 1 wherein the tumor specific *E. coli* expresses a suicide gene selected from the group consisting of p450 oxidoreductase, HSV thymidine kinase, *E. coli* cytosine deaminase, carboxypeptidase G2,  $\beta$ -glucuronidase, penicillin-V-amidase, penicillin-G-amidase,  $\beta$ -lactamase,  $\beta$ -glucosidase, nitroreductase and carboxypeptidase A.

25 9. The method according to claim 1 wherein the suicide gene is HSV thymidine kinase or *E. coli* cytosine deaminase.

10. The method according to claim 1 wherein the *E. coli* expresses the suicide gene under control of a constitutive promoter, an inducible promoter, or a tumor cell specific promoter.

30 11. The method according to claim 1, wherein the *E. coli* is an auxotrophic mutant.

12. The method accordingly to claim 1, wherein the tumor specific microorganism is super-infective.

13. The method according to claim 1, wherein the tumor specific microorganism is attenuated and super-infective.